December 3, 1986

CD-86-20 (LD)

Dear Manufacturer:

Subject: Selection of Emission-Data Vehicles

The purpose of this letter is to provide further guidance regarding the selection of emission-data vehicles. Recent audits have shown several areas in which the regulations and previously issued guidelines are not being followed, as described below.

Background

To redefine the selection of certification vehicles beginning with the 1982 model year, 40 CFR Part 86.085-24(b)(1) was issued on October 13, 1981 (46 FR 50464). (The section was originally numbered 86.082-24(b)(1).) It replaced previous guidance on the subject, which usually referred to highest dynamometer power absorption (DPA) setting or, as in OMSAPC Advisory Circular No. 55B, highest sales volume tire as the selection criteria. The regulation called for test vehicles to be selected according to specified criteria intended to identify the worst-emitting vehicle.

The issuance of redefined selection criteria accompanied a reduction in the number of emission-data vehicles manufacturers were required to provide for certification testing. The Agency stated that fewer vehicles could be tested without significant risk of certifying noncomplying vehicles, because the remaining test vehicles, as selected according to the redefined criteria, "should accurately reflect the worst-case emission performance of the manufacturer's product line" (46 FR 50496).

A-Selection Emission-Data Vehicles

Section 86.085-24(b)(1)(i) requires that within each engine family, one emission-data test vehicle be selected according to specified criteria ("A-selection" vehicle). The vehicle must have the heaviest equivalent test weight (ETW) within the family, and within that ETW class, it must have the "highest road-load power."

Many manufacturers have interpreted road-load power as referring to the vehicle's DPA setting only. However, as EPA has made clear in prior discussions of road-load power (see, e.g., MSAPC Advisory Circular No. 55B, 42 FR 45641 and 45643), that term means the total inertial force a vehicle must overcome to move, including its aerodynamic drag, tire rolling

resistance and drivetrain drag. Dynamometer power absorption settings generally account only for a vehicle's aerodynamic drag (see previous reference). Thus, equating road-load power with the DPA setting is appropriate only if the other factors affecting road-load power are the same for all vehicles in the engine family. If other factors exist which may affect the total load, then these factors should also be considered in the selection.

Until recently, relatively few vehicles had optional tires with significantly higher rolling resistance. Consequently, EPA generally accepted vehicles with the highest DPA setting and the highest sales volume tire as having the highest road-load power. This approach to identifying highest road-load power vehicles was administratively simple and technically appropriate so long as few vehicles had optional tires. However, the recent emphasis on higher performance, including improved handling, has resulted in a dramatic rise in the number of vehicles offered with high-performance tires. To ensure testing of the worst-emitting vehicles, determinations of highest road-load power must now take account of not only highest DPA but also highest tire rolling resistance and any other factor that significantly affects the total load.

In determining highest road-load power, manufacturers will not be required to differentiate between tires whose rolling resistance is likely to be substantially the same. Subject to EPA oversight, if the manufacturer has reasonable cause to believe that the difference in alternative tires' rolling resistance will have an insignificant affect on the test vehicle's road-load, then the manufacturer may select the tire for testing from this highest road-load "group" by means such as projected sales volume or N/V. EPA's intent is to ensure that the worst-case vehicle is tested when one tire has significantly more road-load power than others, and to ensure that manufacturers determine the effect on total road-load power of alternative tires or drivetrains which are not similar

in design intent.

One manufacturer has commented that determining road-load power based on tires and drivetrains, as well as DPA, would constitute a change in the regulation requiring rulemaking to enact. We disagree. The regulation calls for testing of vehicles with the highest road-load power, and highest road-load power refers to all forces acting on a vehicle, not just the aerodynamic drag accounted for by DPA settings. EPA's interpretation of the regulation's requirement has not changed; EPA has been consistent in this definition of road-load power. What EPA will accept in fulfillment of that requirement has changed, but only as needed to keep pace with relevant changes in the vehicle fleet. EPA need not go through rulemaking to so adjust its enforcement approach. Indeed, even if EPA were

revising its interpretation of the regulation itself, the Agency would not have to undertake rulemaking, since it "is not absolutely bound by its prior determinations, but rather may adjust its policies and rulings in light of experience." Montana Power Company v. EPA, 609 F. 2d 334, 347 (9th Cir. 1979).

B-Selection Emission-Data Vehicles

a. Criteria

Section 86.085-24(b)(1)(ii) requires the selection for certification testing of the vehicle expected to exhibit the highest emission levels of the vehicles remaining in the engine family after the selection of the A-selection vehicle. The "B-selection" vehicle thus operates as a verification of the A-selection vehicle's worst-case performance or, if the A-selection criteria have failed to identify the worst-emitting vehicle, as a fail-safe to ensure testing of the worst-emitting vehicle. As in the case of A-selection vehicles, EPA has allowed manufacturers (under 40 CFR Part 86.080-12) to determine the B-selection vehicle subject to EPA audit. The manufacturer is thus responsible for assuring that the worst-case vehicle is actually represented.

EPA's guidance to the industry on how to make the B-selection has been simple and consistent. The regulations state: "the vehicle selected shall be the vehicle expected to

exhibit the highest emissions of those vehicles remaining in the engine family." Our guidance letter of October 26, 1981 (Re: Questions on the Revised Certification Procedures) states: "the manufacturer shall make the selection based on its technical judgment or evaluation of the emissions performance of the vehicles remaining in the engine family." Our premise, when we allowed manufacturers to select emission-data vehicles, was that manufacturers would use their expertise and product knowledge to accurately select the worst-case vehicle for emissions.

Our audits have shown that some manufacturers make minimal efforts to determine the vehicle most likely to fail or ignore relevant parameters when making this determination.

While we do not expect manufacturers to conduct an extensive and costly test program to determine worst-case vehicles, we do expect them to use their best engineering judgment based upon all available data and to consider all possible effects due to weight, N/V, load, calibration (engine and transmission), optional equipment, etc., and all sources of rolling resistance. EPA will not normally challenge the technical judgment of the manufacturer in making B-selections unless EPA suspects a manufacturer is subverting the intent of these regulations, or if the manufacturer has not used best engineering judgment (such as by ignoring certain parameters). Note that EPA may revoke the manufacturer's allowance to select its own emission-data vehicles under the provisions of 40 CFR 86.080-12(c).

b. Waiving the B-selection

Section 86.085-24(b)(1)(ii) states: "if all vehicles within the engine family are similar the Administrator may waive the requirement of this paragraph." However, the A-selection criteria and the B-selection requirements were designed to act in conjunction with each other. They are very different approaches to selecting and testing emission vehicles. Both are needed to verify that a manufacturer's product line complies with emission standards. Even when the manufacturer believes that the A-selection is the actual "worst-case" and all other picks will yield lower emissions, another selection is still required from the vehicles remaining in the engine family to provide verification. EPA intended for the B-selection to be waived only when it is so similar to the A-selection that testing it would be redundant.

In an attempt to establish minimum criteria for what "similar" means in the context of this regulation, EPA furnished guidance in the October 26, 1981 guidance letter, and repeated the guidance in CD-84-10, issued on July 17, 1984. However, our audits have shown that B-selections are still occasionally being waived in cases where such waivers are not appropriate. To correct this, we are establishing more detailed guidance. Manufacturers may not grant waivers of the B-selection in lieu of the Administrator if any of the following variables are not the same for all vehicles within the family:

1. Engine code (different engine codes due only to air-conditioning usage may be considered similar),

2. Equivalent test weight,

3. Transmission configuration,

4. N/V ratio (within 3 percent in any of the forward gears),

5. Shift procedure for manual transmissions or upshift calibrations for automatic transmissions (within 3 mph at any shift point),

6. Torque converter stall speed for automatic transmissions (within 3 percent),

7. Road-load power (DPA setting within 10 percent and total drag within 7 percent), and

8. Engine displacement.

Manufacturers should note that the criteria specified above are not intended to replace the general criterion that a waiver should only be granted if all vehicles within the engine family are so similar that the second emission-data vehicle selection is essentially the same as the first selection. A B-selection may still be required if a manufacturer's vehicles are dissimilar in ways not addressed by the above criteria.

Running Change Data Vehicles

The selection criteria is similar to that of the B-selection emission-data vehicle, except that the running change vehicle should be the one expected to yield the highest emissions of all the vehicles affected or added by the running change. As discussed for the B-selection, all possible effects on emissions, including, for example, all sources of rolling resistance, should be considered in making this determination.

Should you have any questions on the selection of emission-data vehicles, please contact your certification team.

Sincerely,

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